

contemplated as falling within the scope of the invention as defined by the appended claims and equivalents thereto.

What is claimed is:

1 1. An apparatus for generating a computer numerically controlled program, the
2 apparatus comprising:

3 a specifier module having a first input that receives data defining a
4 characteristic of a piece of equipment, a second input that receives data defining a desired
5 characteristic of a seal for use in the piece of equipment, and an output that provides a profile
6 of a seal that is compatible with the piece of equipment; and

7 a computer numerically controlled program generator, having an input that
8 receives the profile of the seal and an output that provides a computer numerically controlled
9 program for machining an element of the seal based upon the profile of the seal, so that the
10 seal is compatible with the piece of equipment.

1 2. The apparatus of claim 1, further comprising a seal design module that
2 receives the profile of the seal and an output that provides dimensions based upon the profile
3 of the seal, the dimensions defining the seal such that the seal is compatible with the piece
4 of equipment.

1 3. The apparatus of claim 2, wherein the seal design module further provides at
2 least one custom manufacturing print for the seal that is compatible with the piece of
3 equipment.

1 4. The apparatus of claim 1, further comprising a proposal generator that
2 provides a proposal for manufacturing the seal so that the seal meets the desired
3 characteristic and fits the piece of equipment.

1 5. The apparatus of claim 4, wherein the proposal includes at least one of price
2 information, modification notes, warnings, a bill of materials, an order form, a dimension
3 verification form, and a plant standardization survey.

1 6. The apparatus of claim 1, wherein the piece of equipment includes a pump.

1 7. The apparatus of claim 6, wherein the data defining the characteristic of the
2 piece of equipment includes an identification of a process fluid for the pump.

1 8. The apparatus of claim 1, wherein the data defining the characteristic of the
2 piece of equipment includes dimensions that describe the piece of equipment.

1 9. The apparatus of claim 1, wherein the data defining the characteristic of the
2 piece of equipment includes a description of an environmental operating condition of the
3 piece of equipment.

1 10. A computer operated method for generating a computer numerically
2 controlled program, the method comprising the steps of:
3 receiving a first input defining a characteristic of a piece of equipment;
4 receiving a second input defining a desired characteristic of a seal for use in
5 the piece of equipment; and
6 automatically generating a computer numerically controlled program for
7 machining an element of the seal based upon the first input and the second input, so that the
8 seal is compatible with the piece of equipment.

1 11. The method of claim 10, further comprising a step of generating dimensions
2 based upon the first input and the second input, the dimensions defining a seal that is
3 compatible with the piece of equipment.

1 12. The method of claim 11, further comprising a step of generating at least one
2 custom manufacturing print for the seal that is compatible with the piece of equipment.

1 13. The method of claim 10, further comprising a step of generating a proposal
2 for manufacturing the seal that meets the desired characteristic and fits the piece of

3 equipment.

1 14. The method of claim 13, wherein the proposal includes at least one of price
2 information, modification notes, warnings, a bill of materials, an order form, a dimension
3 verification form, and a plant standardization survey.

1 15. The method of claim 10, wherein the piece of equipment includes a pump.

1 16. The method of claim 15, wherein the characteristic of the piece of equipment
2 includes an identification of a process fluid for the pump.

1 17. The method of claim 10, wherein the characteristic of the piece of equipment
2 includes dimensions that describe the piece of equipment.

1 18. The method of claim 10, wherein the characteristic of the piece of equipment
2 includes a description of an environmental operating condition of the piece of equipment.

1 19. An apparatus for generating a computer numerically controlled program, the
2 apparatus comprising:

3 means for receiving a first input defining a characteristic of a piece of
4 equipment;

5 means for receiving a second input defining a desired characteristic of a seal
6 for use in the piece of equipment; and

7 means for generating a computer numerically controlled program for
8 machining an element of the seal based upon the first input and the second input, so that the
9 seal is compatible with the piece of equipment.

1 20. The apparatus of claim 19, further comprising means for generating
2 dimensions based upon the first input and the second input, the dimensions defining a seal

3 that is compatible with the piece of equipment.

1 21. The apparatus of claim 20, further comprising means for generating at least
2 one custom manufacturing print for the seal that is compatible with the piece of equipment.

1 22. The apparatus of claim 19, further comprising means for generating a proposal
2 for manufacturing the seal that meets the desired characteristic and fits the piece of
3 equipment.

1 23. The apparatus of claim 22, wherein the proposal includes at least one of price
2 information, modification notes, warnings, a bill of materials, an order form, a dimension
3 verification form, and a plant standardization survey.

1 24. The apparatus of claim 19, wherein the piece of equipment includes a pump.

1 25. The apparatus of claim 24, wherein the characteristic of the piece of
2 equipment includes an identification of a process fluid for the pump.

1 26. The apparatus of claim 19, wherein the characteristic of the piece of
2 equipment includes dimensions that describe the piece of equipment.

1 27. The apparatus of claim 19, wherein the characteristic of the piece of
2 equipment includes a description of an environmental operating condition of the piece of
3 equipment.

1 28. An apparatus for generating a computer numerically controlled program,
2 comprising:
3 a database of templates of computer numerically controlled programs,
4 specifying operations for a program for machining an element, without dimensional

5 information; and

6 a computer numerically controlled program generator, having an input that
7 receives the profile of the seal and templates from the database of templates for the seal, and
8 an output that provides a computer numerically controlled program for machining an element
9 of the seal based upon the profile of the seal, so that the seal is compatible with the piece of
10 equipment.

1 29. A method for making a mechanical seal, comprising the steps of:
2 preparing templates of computer numerically controlled programs, specifying
3 operations for a program for machining an element, without dimensional information; and
4 receiving a profile of a seal and the templates for the seal; and
5 generating a computer numerically controlled program for machining an
6 element of the seal based upon the profile of the seal, so that the seal is compatible with the
7 piece of equipment.

1 30. A computer system for facilitating identification of equipment for matching
2 with a seal, comprising:
3 a graphical user interface for displaying a template having fields and for
4 receiving inputs in the fields and defining dimensions of the equipment, wherein the
5 graphical user interface associates graphical information illustrating how to obtain the
6 information with the fields in the templates, wherein the graphical user interface verifies the
7 completeness and type of data in each field in the template; and
8 means for providing dimensional verification information indicating expected
9 dimensions for each of the fields in the template.